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10/021,676	12/12/2001	Matthew S. Ryskoski	2000.083300/TT4500	4732

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WILLIAMS, MORGAN & AMERSON, P.C.
10333 RICHMOND, SUITE 1100
HOUSTON, TX 77042

EXAMINER

PALADINI, ALBERT WILLIAM

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 11

Application Number: 10/021,676
Filing Date: December 12, 2001
Appellant(s): RYSKOSKI, MATTHEW S.

Mr. Scott F. Diring
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed December 1, 2003.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The amendment after final rejection filed on 8/11/03 has not been entered.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

The rejection of claims 1-41 stand or fall together because appellant's brief summarizes the groupings on page 5, but is not persuasive regarding each group as the summary does not clearly delineate claim language.. See 37 CFR 1.192(c)(7).

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

6456894	Nulman	9-2002
6088626	Lilly et al.	7-2000
6105520	Frazer et al.	8-2000
6415196	Crampton et al.	7-2002

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nulman (6456894).

In figure 3, Nulman discloses a method for scheduling production flow, where the manufacturing environment block monitors the manufactured items, and the tools used to produce these items. The data is fed to the SPC (statistical process control block) 112 flags out of control situations due to either item health or tool health. After being processed by the analysis block 116, the MES block schedules the manufacturing items for processing based on the item health metrics and the tool health metrics. Nulman states on lines 18-26 in paragraph 7 "The MES environment then determines whether the process of manufacturing environment 110 is

within or outside the SPC control limits. A decision making function in MES environment 118 can then be invoked to decide whether or not to initiate intervention in manufacturing environment 110. Such intervention can include aborting the run, adjusting parameters such as chamber pressure, scheduling additional wafers for processing or scheduling maintenance activities.” The correction requires changing the manufacturing parameters if the problem is an item health problem, or maintenance if the problem is a tool health problem. Nulman does not utilize “yield.”

“Yield” is a measure of the percent of good products emerging a production line. Statistical process control charts set up control limits, so that the system flags an out of control situation. An out of control situation occurs when too many manufactured items are not within their design control limits. It would have been obvious to one of ordinary skill in the art that the detection of an out of control situation by a statistical process control chart indicates a reduction in yield, so that an SPC is a measure of yield.

(11) *Response to Argument*

The Applicant states on page 4 “Nulman schedules availability, not based on a measure of quality for the items being processed, and a measure of quality of the tools.” and that “The purpose of determining tool health and scheduling based on item and tool health is to distinguish between available tools. The construction proffered by the Office Action defeats this purpose and negates the determining of item health element of the claim.” Although the claims do not recite distinguishing between available tools, the

Statistical Process Control system taught by Nulman considers both the product health and the tool health in the scheduling process, as stated below by Nulman below.

Nulman states on lines 45-53 in column 3 "Effective inventory control of a wafer fab also requires a low incidence of bottlenecks or interruptions due to unscheduled down times which can for example be caused by unscheduled maintenance, interruptions resulting from processing parameters which are outside their specified limits, unavailability of required materials such as a process gas, unavailability of necessary maintenance replacement parts, unavailability of a processing tool such as a chamber, or electrical power interruptions."

Nulman states on lines 17-22 in column 19 "SPC techniques, such as those described in connection with FIGS. 3-9 can also be used to identify processing, product or quality problems requiring repair or maintenance action of a wafer fab tool. Statistical information regarding the need for spare parts, based on these SPC techniques can be provided by the MES environment to maintenance parts 1254 and maintenance activities 1256 of chamber 12, shown in FIG. 16. This SPC derived information is then an added component of the spare parts requirements which is provided to the spare parts monitor environment."

Nulman states on lines 35-44 in column 7, "SPCIF 100 schematically illustrated in FIG. 3 provides SPC which is integrated with manufacturing. This integration results in real time monitoring of process control and/or product quality and provides real time process intervention as soon as certain preselected process or product parameters are outside the control limits. It also facilitates more effective scheduling of tool availability, materials inventory and real time knowledge as well as scheduling capability for facilities such as electrical power requirements in the manufacturing process. "

Thus, Nulman utilizes the health metrics of the tools in terms of the tool availability and maintenance down time, and the health of the item as determined by the Statistical Process Control process monitoring in the scheduling process. This is clearly summarized by Nulman where he states in column 7, lines 3—44 "This integration results in real time monitoring of process control and/or product quality and provides real time process intervention as soon as certain preselected process or product parameters are outside the control limits. It also facilitates more effective scheduling of tool availability, materials inventory and real time knowledge as well as scheduling capability for facilities such as electrical power requirements in the manufacturing process. "

For the above reasons, it is believed that the rejections should be sustained.

Appellant is required to comply with provisions of 37 CFR 1.192(c).


To avoid dismissal of the appeal, Appellant must comply with the provisions of 37 CFR 1.192(c) within the longest of any of the following TIME PERIODS: (1) ONE MONTH or THIRTY DAYS, whichever is longer, from the mailing of this communication; (2) within the time period for reply to the action from which appeal has been taken; or (3) within two months from the date of the notice of appeal under 37 CFR 1.191. Extensions of these time periods may be granted under 37 CFR 1.136.

Application/Control Number: 10/021,676
Art Unit: 2125

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Respectfully submitted,

Albert W Paladini
Primary Examiner
Art Unit 2125


Albert W. Paladini
December 11, 2003

Conferees  
Mr. Leo Picard, Mr. Tod Swan, Albert W. Paladini

WILLIAMS, MORGAN & AMERSON, P.C.
10333 RICHMOND, SUITE 1100
HOUSTON, TX 77042

Any inquiry concerning this communication or earlier communication from the examiner should be direct to Albert W. Paladini whose telephone number is (703) 308-2005. The examiner can normally be reached from 7:30 to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Leo P. Picard, can be reached on (703) 308-0538. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Albert W. Paladini
Primary Examiner
Art Unit 2125